or 'Mediterraneanization'. This is also true of the northwestern Victorian flora as a whole. That general area has predominantly annual exotics of which 76% originated in Europe, the Mediterranean and the Middle East (Wapshere *in* Noble and Bradstock, Mediterranean landscapes in Australia. 1989).

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A New Combination in *Calochortus* (Liliaceae).—Randy K. Zebell and Peggy L. Fiedler, Department of Biology, San Francisco State University, 1600 Holloway Avenue, San Francisco, CA 94132.

A taxonomic investigation of the *Calochortus venustus* complex suggests that *Mariposa argillosus* R. F. Hoover is a coherent, distinct species belonging to the sect. *Mariposa* within the genus *Calochortus.* While the binomial *C. argillosus* has been used on herbarium labels, it has never been formally proposed. Thus, the combination is formally proposed.

Calochortus argillosus (Hoover) R. Zebell and P. Fiedler. comb. nov. Basionym: *Mariposa argillosa* R. F. Hoover, Leafl. West. Bot., IV(1):3, 1944. *Calochortus argillosus,* the clay mariposa, grows in open to partially canopied grasslands, on hard clay soils in areas of volcanic or metamorphic rock, from San Mateo to San Luis Obispo counties. It has three-angled, non-winged capsules, membranaceous bulb coats, and slightly depressed to non-depressed glands that lack surrounding membranes. These characters clearly place it within subsect. *Venusti* of sect. *Mariposa. Calochortus argillosus* most closely resembles *C. venustus,* with which it is most often confused, and from which it is distinguished by its color pattern. In *C. argillosus,* the inner perianth segments are adaxially cream-colored with a single vertical band of dark purple below the base of the gland, with a nearly central dark purple to maroon blotch above a small region of yellow to yellow-green located distal to the gland and proximal to (and occasionally above) the blotch. Abaxially, the inner perianth segments of *C. argillosus* are distally dark lavender to cream with a central band of cream and the proximal half streaked with dark red or dark green. This color pattern is comparatively stable and significant, especially when it is contrasted with the striking array of floral colors present in *C. venustus,* e.g., cream, crimson, rose, purple, yellow, and blood red, in various patterns such as one or two spots, solid colors without spots, and with or without streaks. *Calochortus argillosus* is also distinguished from *C. venustus* by its transversely-oriented, narrow-rectangular to lunate glands, its stouter capsules, and its more cuneate, less clawed petals. It differs from *C. luteus,* a bright yellow-flowered species to which Hoover thought it most closely related, by its cream colored flowers. Munz (California flora, University of California Press, 1959) considered *C. argillosus* as a synonym of *C. superbus,* but *C. superbus* has inverted V-shaped glands and a more intense orange-yellow region above the central blotch.

Calochortus argillosus was described by Hoover in 1944. In the protologue, he elevated all members of sect. *Mariposa* occurring in San Luis Obispo County to genus level. In the forthcoming revision of Jepson's Manual of Flowering Plants of California, P. L. Fiedler recognizes *Mariposa* as a section of *Calochortus,* as has been done in all previous comprehensive *Calochortus* treatments.

Research in progress by one of us (RKZ) suggests that there are two distinct groups within *C. argillosus.* One group occurs near the coast in San Luis Obispo County around Morro Bay and Point Sal, while the other group ranges more broadly through the central coastal ranges. The flowers of the coastal group consistently lack yellow above the central dark purple blotch, and the central blotch is consistently square to circular. The flowers of the interior group have pale yellow above the dark purple to

maroon central blotch, and the central blotch is often elongated into a colored cresent or horizontal band. The flowers of the coastal group are more cuneate and less clawed than those of the interior group. Also, the interior group is more variable in gland shape, ranging from narrowly rectangular to lunate to weakly inverted V-shaped. Regardless, *C. argillosus* is morphologically distinct from *C. superbus, C. luteus,* and *C. venustus.*

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NEW CHROMOSOME COUNTS IN MADIINAE (ASTERACEAE) AND THEIR SYSTEMATIC SIGNIFICANCE.—Bruce G. Baldwin, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson, AZ 85721.

Chromosome numbers have been reported from all but five of the ca. 116 species of tarweeds (cf. Kyhos et al., Biodiversity and cytogenetics of the tarweeds [Asteraceae: Heliantheae-Madiinae], Ann. Missouri Bot. Gard. 77:84–95, 1990). New chromosome records from *Hemizonia martirensis, Layia platyglossa* [*L. ziegleri*], and *Madia stebbinsii* reported herein leave only one extant species of Madiinae uncounted: *Hemizonia streetsii* A. Gray, from the remote San Benito Islands of Baja California. The systematic significance of these new counts is assessed in light of the nearly comprehensive record of chromosome numbers in Madiinae and pertinent morphological evidence.

Floral buds were fixed in modified Carnoy's solution (6:3:1; chloroform : 100% ethanol : glacial acetic acid) for five days. Cells were stained in acetocarmine and cleared with Hoyer's solution prior to squashing. All counts were from microsporocytes at diakinesis, metaphase I, or anaphase I.

Hemizonia martirensis Keck, $n=12$, Mexico, Baja California, Sierra de San Pedro Martir, Valladares, 0.4–0.8 km E of the ranch site, *Baldwin, S. N. Martens, & S. J. Bainbridge 771* (ARIZ).

The modal, and possibly basal, chromosome number in *Hemizonia* sect. *Madiomeris,* to which *H. martirensis* belongs, is also $n=12$. This count, therefore, offers little insight into infrasectional relationships of *H. martirensis.*

Layia platyglossa (Fischer & C. A. Meyer) A. Gray [*L. ziegleri* Munz], $n=7$, CA, Riverside Co., San Jacinto Mts., 1.3 km N of Keen Camp Summit along Hwy 74, *S. J. Bainbridge 91-3* (ARIZ); $n=7$, Garner Valley, 0.3 km N of Morris Ranch Road, *S. J. Bainbridge 91-4* (ARIZ).

Layia ziegleri was described by Munz (Supplement to A California Flora, Univ. California Press, 1968) as a new species with probable close affinities to *L. glandulosa* (Hook.) Hook. & Arn. ($n=8$) or *L. pentachaeta* A. Gray ($n=8$). *Layia ziegleri* is indeed readily distinguished from all $n=8$ *Layia* species by its pappus of scabrous, nonplumose bristles. Later, Munz (A Flora of Southern California, Univ. California Press, 1974) only hesitantly recognized *L. ziegleri* by indicating that it was an "uncertain taxon" that might be conspecific with the highly polymorphic *L. platyglossa* ($n=7$). *Layia ziegleri* has been accorded status as a List 1B (rare or endangered) species by the California Native Plant Society (Smith Jr., J. P. and K. Berg, Inventory of Rare and Endangered Vascular Plants of California, CNPS, 1988) and as a Sensitive species by the U.S. Forest Service (Shevock, J. personal communication).

Morphologically, *Layia ziegleri* falls well within the range of variation in *L. platyglossa.* The uniform yellow rays and yellow anthers in *L. ziegleri,* which superficially suggest placement within the $n=8$ group, are infrequent but widespread character states in *L. platyglossa* (cf. Clausen, J., Stages in the Evolution of Plant Species, Hafner, 1951). Although it is widely documented that uniformly yellow-rayed indi-